

REMARKS

Claims 23-30 are pending in the present application. No claims have been added. No claims have been withdrawn. Thus, upon entry of the present Amendment claims 23-30 are pending.

Reconsideration of this application, in view of the foregoing amendments and the following remarks, is respectfully requested.

Claim Rejections - 35 USC § 103

The Official Action rejects claims 23, 26, 27 and 30 under 35 U.S.C. 103(a) as being unpatentable over Beyers, II et al. U.S. Patent 5,235,619 in view of the publication by Benelli entitled "Two new coding techniques for diversity communications systems" and Balachandran et al. U.S. 6,778,558. Applicant traverses this rejection.

Regarding claims 23 and 27, The Examiner opined that Beyers discloses a communication arrangement for communicating data using a cable television transmission medium where a transmitter will transmit the same data on a plurality of channels (col. 18, lines 4-13), where the transmitter will transmit on a plurality of different channels each time data is transmitted (col. 19, lines 6-8). Beyers, however, does not expressly illustrate a 1:N rate encoder along with a transmission arrangement for implementing the diversity scheme of reproducing the symbol N times and transmitting each reproduced symbol using a distinct transmission channel. Benelli discloses such an arrangement in Figure 1 which shows a 1 :N rate encoder (coder) coupled to an input data stream and configured to reproduce a symbol N times, and a transmission arrangement configured to use a plurality of outputs to transmit each symbol using a distinct channel (channels 1 -m), where a receiver is coupled to the outputs of the transmission arrangement for combining the signals via a signal combiner to output an estimate of the symbol. It would have been obvious to one of ordinary skill in the art to use an arrangement as taught by Benelli to implement the diversity scheme

of Beyers because using such an arrangement helps reduce BER even when noise is significant, as stated by Benelli on page 1530, "introduction," first paragraph.

Applicants respectfully disagree. As stated in MPEP 5 2143.01, "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP 5 2143.01 (citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990)) (emphasis added). As has been held by the Board of Patent Appeals and Interferences, and noted in the MPEP, the mere fact that one skilled in the art could adapt the reference device to meet the terms of a claim is not by itself sufficient to support a finding of obviousness. The prior art must also provide a motivation or reason for one skilled in the art, without the benefit of Applicants' specification, to make the necessary modifications to the reference device. MPEP 2 144.04(VI.)(C.) (citing *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351,353 (Bd. Pat. App. & Inter. 1984). The Court of Appeals for the Federal Circuit affirmed this principle when stating that "[c]ombining prior art references without evidence of... a suggestion, teaching, or motivation simply takes the inventor's disclosure of a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight." *In re Dembiczak*, 50 USPQ2d 1614,1617 (Fed. Cir. 1999). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Although the evidence of a suggestion, teaching or motivation to combine the references commonly comes from the prior art references themselves, the suggestion, teaching or motivation can come from the knowledge of one of ordinary skill in the art or the nature of the problem to be solved. *Id.* The showing must be clear and particular and "[b]road conclusory statements regarding the teaching effort of multiple references, standing alone, are not 'evidence.'" *Id.*

The mere statement of using such an arrangement helps reduce BER even when noise is significant does not teach or suggest use of diversity schemes in wireline

systems such as cable television transmission medium as recited in independent Claims 23, and 27.

The problems solved by the Benelli and Beyers references are distinct in view of the caselaw set forth by the Federal Circuit and, thus, without impermissible hindsight. The Benelli publication does not disclose use of diversity in communicating a data signal using a cable television transmission medium. Page 1530 of Benelli teaches diversity in wireless spread spectrum systems subject to fading and multipath problems.

Beyer is concerned with interference noise which causes peaks in the noise spectral density distribution in the band of interest. Interference noise destroys effective data transmission when known data transmission coding techniques such as frequency or phase shift keying are practiced over a single data transmission channel. In particular, interference noise especially relates to the four characteristics of return path introduced above: ingress, common mode distortion, impulse noise and amplifier non-linearities (Col. 2, lines 47).

Beyer considers spread spectrum transmissions, but rejects and teaches away from their use, "despite the development of spread spectrum and other RF data return, the requirement remains in the cable television art for an upstream data transmission having highly data throughput from a plurality of subscriber premises to a cable television headend utilizing the cable television distribution plant and which is relatively impervious to interference noise." (Col.4, line 1-37). It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).

Applicants respectfully submit that one of ordinary skill in the art would lack the requisite motivation or suggestion to combine the references.

Regarding claim 23, the Examiner has added a reference to reject the element of :

"a receiver, coupled to the outputs of the transmission arrangement and configured to perform joint equalization

and soft-combining of signals received from the outputs of the transmission arrangement and to output an estimate of the symbol or FEC block.”

The Examiner opines, “Beyers in combination with Benelli, while showing a receiver for combining the received signals (see Benelli, Fig. 1), do not disclose that the receiver performs joint equalization and softcombining. Balachandran discloses a receiver that combines multiple received copies of a data signal to increase the likelihood of correct decoding, which is described as soft combining of the signal (col. 1, lines 24-29). Accordingly, the combining of the signals disclosed by Beyers and Benelli is a soft combining. Balachandran further discloses jointly equalizing the received signal (col. 8, lines 17-3 1). It would have been obvious to one of ordinary skill in the art to perform joint equalization and soft combining of the received signal as disclosed by Balachandran in the system of Beyers and Benelli because joint equalization allows for the offsetting of severe ISI, as is well known in the art of communications.

The claim must be examed as a whole and not element by element. The inclusion by the Examiner of Balachandran for the last element of claim 23 is demonstrative of Examiner attempt to piece together the claimed invention using Applicants' claims as the guide.

In light of the above, it is respectfully submitted that the present application is in condition for allowance, and notice to that effect is respectfully requested.

While it is believed that the instant response places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner contact the undersigned in order to expeditiously resolve any outstanding issues.

Respectfully submitted,
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